

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of the Commission's Rules with	)	GN Docket No. 12-354
Regard to Commercial Operations in the	)	
3550-3650 MHz Band	)	

To: The Commission

**COMMENTS OF  
THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

July 14, 2014

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## Summary

The Wireless Internet Service Providers Association (“WISPA”) submits Comments in response to the Commission’s Further Notice of Proposed rulemaking (“*FNPRM*”). WISPA generally supports the Commission’s proposed framework for licensing, operations and spectrum management, and recommends changes to improve spectral efficiency, promote cost-effective deployment, enhance the robustness of the Spectrum Access system (“SAS”) and expedite licensing. WISPA also offers a balanced proposal for transition of the 3650-3700 MHz operations that accounts for the extensive investment made by Grandfathered Wireless Broadband Providers while ensuring a market-based migration of operations to Part 96.

WISPA appreciates the Commission’s objective to allow higher-power operations in rural areas. There is a demonstrable need for spectrum to help address the gulf between urban and rural broadband adoption. Wireless Internet service providers (“WISPs”) were among the first to commercialize the 3650-3700 MHz band for fixed broadband in rural areas, and are poised to do the same in the adjacent 3550-3650 MHz band if the technical rules are appropriately crafted.

Despite the Commission’s intention, certain of the technical rules do not maximize the ability of rural operations to flourish. First and foremost, the Commission should increase the maximum conducted output power of end user devices in rural areas to 47 dBm/10 MHz so that it matches the maximum power level for CBSDs. Without this change, the Commission’s proposal would negate the benefits of the higher maximum power level proposed for CBSDs. Second, the Commission should require CBSDs to provide the SAS with additional information to increase spectral efficiency. For example, incorporating directional antenna information and antenna polarization information would increase the areas where CBSDs could be deployed without causing harmful interference. Third, the rules should accommodate a process for

identifying instances of interference by one General Authorized Access (“GAA”) user to another, and notify such users so they can attempt to privately resolve the potential interference.

WISPA’s Comments also make several recommendations regarding the Commission’s specific rule proposals. WISPA agrees with the Commission’s proposal to set aside 50 percent of the spectrum for GAA use, allow use in 10-megahertz unpaired channels and generally limit a single entity from holding more than 30 megahertz of Priority Access spectrum in a given census tract at a given time. WISPA also agrees with the Commission’s proposal to award Priority Access Licenses (“PALs”) for one-year terms “stackable” to five years, and to allow opportunistic GAA use when and where a PAL is not in actual use. WISPA reiterates its proposal for a definition of “rural area” that would allow higher-power operations in more areas. WISPA believes that any spectrum set-aside for Contained Access Use should come from the Priority Access pool in order to promote more reliable spectrum use in defined Contained Access Facilities.

WISPA proposes a two-round competitive bidding process that would efficiently award PALs. Under this proposal, round one would identify eligible bidders and determine the high bid. In round two, remaining mutually exclusive applicants would have a final opportunity to raise their bids before PALs were awarded.

WISPA believes that federal and Fixed Satellite Service (“FSS”) earth station exclusion zones can be “right-sized” based on “real-world” interference protection parameters. WISPA suggests a method by which shared operations could occur within federal exclusion zones at times when Naval radar is not present. WISPA also recommends that commercial users should operate within FSS exclusion zones based on good faith negotiations, as is the case in the 3650-3700 MHz band today.

For the 3650-3700 MHz band, WISPA makes specific recommendations for the smooth and unforced transition of existing equipment and operations into the SAS under new Part 96. Grandfathered Wireless Broadband Providers, who have expended millions of dollars to deploy service, should have the opportunity to continue to operate as they are, so long as they provide channel and service contour information to the SAS. Because their current equipment would not be able to change frequencies under SAS governance, their channels would be static until such time as equipment was replaced or new locations registered after a five-year transition period. In addition, Grandfathered Wireless Broadband Providers should have a first opportunity to file for PALs that replicate their existing channels and service contours to avoid situations where they would otherwise need to compete with new entrants.



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The Wireless Internet Service Providers Association ("WISPA"), pursuant to Sections 1.415 and 1.419 of the Commission's Rules, hereby comments in response to the Further Notice of Proposed Rulemaking ("*FNPRM*") released on April 23, 2014 in the above-captioned proceeding.<sup>1</sup> Overall, WISPA supports many of the Commission's proposed Part 96 licensing and spectrum use rules, but recommends changes that would further promote cost-effective higher power operations in rural areas. WISPA offers specific proposals for certain technical requirements that would increase the utility and viability of the 3550-3650 MHz band for commercial use and describes an efficient competitive bidding process for mutually exclusive applications for Priority Access Licenses ("PALs"). WISPA also suggests improvements to the Commission's supplemental proposal for the 3650-3700 MHz band that would better ensure the continuing availability of existing fixed wireless broadband services to subscribers in those areas where that band has been widely deployed.

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<sup>1</sup> *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, FCC 14-49 (rel. Apr. 23, 2014) ("*FNPRM*"). A summary of the *FNPRM* published in the Federal Register on June 2, 2014 designated a deadline of July 14, 2014 for filing of Comments. See 79 Fed. Reg. 31247 (June 2, 2014). Accordingly, these Comments are timely filed.

## Introduction

Throughout this proceeding, WISPA has endorsed the shared use of spectrum in the 3550-3650 MHz band for commercial wireless services enabled by a three-tiered Spectrum Access System (“SAS”),<sup>2</sup> and has supported many of the Commission’s initiatives flowing from the Revised Framework.<sup>3</sup> WISPA also advocated for increased flexibility to permit higher-power operations in rural areas and to help ensure that existing 3650-3700 MHz Service licensees can successfully transition to a regulatory approach that incorporates the entire 150 megahertz spectrum block.

WISPA appreciates the Commission’s efforts in developing detailed rules and seeking comment on technical and interference protection proposals. In Section I of these Comments, WISPA addresses many of the issues critical to ensuring that the 3550-3650 MHz band can be used to its fullest extent in rural areas, and recommends important changes to the Commission’s proposals. In Sections II-VI, WISPA reviews the specific language of the proposed General Rules, rules for Incumbent Protection, Priority Access rules (including competitive bidding rules), rules for General Authorized Access, Technical Rules and rules for the Spectrum Access System. In Section VII, WISPA recommends adoption of certain rules and processes to enable the smooth transition of the 3650-3700 MHz band into the Citizens Broadband Radio Service regulatory regime. Together, these proposals will promote efficient and cost-effective use of the

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<sup>2</sup> See Comments of WISPA, GN Docket No. 12-354 (Feb. 20, 2013) (“WISPA NPRM Comments”); Reply Comments of WISPA, GN Docket No. 12-354 (Apr. 5, 2013) (“WISPA NPRM Reply Comments”); Letter from L. Elizabeth Bowles, WISPA President, to Marlene H. Dortch, FCC Secretary, GN Docket No. 12-354, *Ex Parte* Letter (May 13, 2013); Letter from Matt Larsen, FCC Committee Chair, to Marlene H. Dortch, FCC Secretary, GN Docket No. 12-354, *Ex Parte* (July 11, 2013); Letter from L. Elizabeth Bowles, WISPA President, to Marlene H. Dortch, FCC Secretary, GN Docket No. 12-354, *Ex Parte* Letter (May 13, 2013); Letter from Stephen E. Coran, Counsel to WISPA, to Marlene H. Dortch, FCC Secretary, GN Docket No. 12-354, *Ex Parte* Letter (Sept. 19, 2013); Comments of WISPA, GN Docket No. 12-354 (Dec. 5, 2013) (“WISPA Revised Framework Comments”); Reply Comments of WISPA, GN Docket No. 12-354 (Dec. 20, 2013) (“WISPA Revised Framework Reply Comments”). WISPA also submitted a Technical Paper regarding the proposed SAS. See Unger, Jack, “Desired Technical Aspects of the SAS System,” GN Docket No. 12-354 (Jan. 3, 2014) (“WISPA Technical Paper”).

<sup>3</sup> *Public Notice*, “Commission Seeks Comment on Licensing Models and Technical Requirements in the 3550-3650 MHz Band,” GN Docket No. 12-354, FCC 13-144 (rel. Nov. 1, 2013).

3550-3650 MHz band, enhance the effectiveness of the SAS and help maintain existing service for subscribers that obtain fixed broadband service from WISPs that have constructed and operate viable commercial networks in the 3650-3700 MHz band.

### Discussion

#### **I. THE COMMISSION SHOULD REVISE ITS PROPOSED RULES TO ENABLE SUCCESSFUL HIGHER-POWER OPERATIONS IN RURAL AREAS.**

Since the National Telecommunications and Information Administration (“NTIA”) released its Fast Track Report in 2010,<sup>4</sup> WISPA has expressed strong interest in using the 3550-3650 MHz band for higher-power operations.<sup>5</sup> WISPA noted the “rapid deployment of services” in the adjacent 3650-3700 MHz band to help justify the addition of 100 megahertz of spectrum in the 3550-3650 MHz band under similar technical rules.<sup>6</sup> In a joint *ex parte* presentation from June 2011, WISPA and Motorola Solutions, Inc. stated that “[t]his spectrum could be quickly leveraged by the Wireless ISP community to deploy broadband services, in both rural and suburban areas, with many equipment providers already able to support the additional spectrum.”<sup>7</sup>

Although much has changed over the years with the release of the PCAST Report<sup>8</sup> and the development of spectrum database technology, the interests of WISPA and its members has not waned – in fact, it has only increased. In the initial *NPRM*, the Commission acknowledged that:

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<sup>4</sup> See NTIA, An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3550-3650 MHz, 4200-4220 MHz, and 4380-4400 MHz Bands (rel. Oct. 2010 (“Fast Track Report”))

<sup>5</sup> See Comments of WISPA, ET Docket No. 10-123 (Apr. 22, 2011) (“WISPA Fast Track Comments”).

<sup>6</sup> See *id.* at 5.

<sup>7</sup> Letter from Chuck Powers, Director Engineering and Technology Policy, Motorola Solutions, Inc., to Marlene H. Dortch, FCC Secretary, ET Docket No. 10-123 (June 30, 2011) at 1.

<sup>8</sup> See PCAST, Report to the President: Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth (rel. July 20, 2012).



[W]ireless internet service providers see significant value in the use of 3.5 GHz for fixed wireless broadband. Indeed, the Wireless Internet Service Providers Association (WISPA) has urged the Commission to adopt licensing and operational rules consistent with the rules adopted for fixed broadband use in 3650-3700 MHz. By doing so, they argue, the Commission would create a contiguous 150 megahertz band for fixed wireless broadband use.<sup>9</sup>

WISPA is pleased that the rules proposed in the *FNPRM* reflect the Commission's desire "to establish flexible rules that would allow for a wide variety of innovative services to be deployed in the 3.5 GHz Band."<sup>10</sup> This objective is manifest in the Commission's proposal to establish different maximum power levels for defined "rural" and non-rural areas.<sup>11</sup> WISPA strongly supports the flexible use approach that will permit higher-power operations to facilitate broadband deployment in rural areas.

Unfortunately, however, the Commission's proposed technical and operating rules fall short of enabling the full benefits that could be realized. As discussed in Section I.B, *infra*, the maximum power level for end user devices should be increased to enable effective communications with the associated CBSD. Further, the SAS should have the capability and the requirement to manage interference protection among GAA users. The Commission also should right-size federal and Fixed Satellite Service ("FSS") earth station exclusion zones based on "real world" protection requirements. With these important changes, the Commission can provide commercial enterprises an essential spectrum tool that can be used to transform the lives of rural Americans that today live and work on the wrong side of the digital divide.

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<sup>9</sup> *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, 27 FCC Rcd 15594, 15599 (2012) ("*NPRM*").

<sup>10</sup> *FNPRM* at 24.

<sup>11</sup> *See id.* The definition of "rural area" is discussed in Section II, *infra*.

**A. There Is A Demonstrable Need For Spectrum To Enable Cost-Efficient Higher-Power Operations In Rural Areas.**

**1. Access To Additional Spectrum In Rural Areas Will Help Bridge The Digital Divide.**

It is well documented that rural areas continue to lag far behind urban and suburban areas in fixed broadband adoption. In the *Eighth Broadband Report*, the Commission found that “[a]pproximately 14.5 million of the 19 million (or 76 percent) Americans without access to fixed broadband meeting the speed benchmark reside in rural areas,”<sup>12</sup> and “that rural Americans are more than thirteen times more likely to lack access to fixed broadband than Americans in non-rural areas.”<sup>13</sup> Just two months ago, the Commission acknowledged that “[r]ecent data suggest that a majority of Americans living in urban areas (64 percent) have access to at least 25 Mbps/10 Mbps service, while only a substantial minority of Americans residing in rural areas (only 21 percent) have access to that same 25 Mbps/10 Mbps service.”<sup>14</sup>

WISPs are working to solve this urban-rural divide with fixed wireless technology that covers many areas that simply cannot be economically served by terrestrial technologies such as by fiber, cable and DSL. Without the benefit of federal Universal Service Fund (“USF”) subsidies, WISPs have economically deployed service using unlicensed spectrum – “at one time considered to be ‘junk’ spectrum”<sup>15</sup> – and “lightly-licensed” spectrum in a cost-efficient manner. Simply stated, in sparsely populated areas where wired technologies cannot obtain an adequate return on investment without reliance on federal subsidies, WISPs can cost-effectively place

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<sup>12</sup> See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10370 (2012) (“*Eighth Broadband Report*”).

<sup>13</sup> *Id.*

<sup>14</sup> *Protecting and Promoting an Open Internet*, Notice of Proposed Rulemaking, GN Docket No. 14-28 (May 15, 2014) (“*Open Internet NPRM*”) at 13, citing Department of Commerce, NTIA, State Broadband Data and Development Grant Program, Docket No. 0660-ZA29, Notice of Funds Availability, 74 Fed. Reg. 32545 (July 8, 2009).

<sup>15</sup> Connecting America: The National Broadband Plan (Mar. 16, 2010) at 96.

transmitters on towers, water tanks, grain elevator legs and other vertical infrastructure to quickly deploy broadband service to small rural communities. As a recent Commission report found, the number of fixed wireless connections of at least 3 Mbps downstream and 768 kbps upstream increased from 64,000 in June 2009 to 337,000 in June 2013.<sup>16</sup> This five-fold increase far exceeds the increases of other terrestrial fixed broadband technologies over the same time period. In addition, based on information derived from the National Broadband Map and as stated in the WISPA Revised Framework Comments, “in 16.7 percent of the country, consumers can receive fixed terrestrial broadband service only from a wireless Internet service provider (“WISP”). Stated another way, one-sixth of the geographic area of the country would have no access to fixed broadband but for the presence of a WISP.”<sup>17</sup>

Notwithstanding this industry success story, access to additional spectrum for higher-power fixed broadband service delivery remains a critical need. Not only is additional spectrum necessary for fixed broadband service to expand into areas that remain unserved, but WISPs and their subscribers labor under capacity constraints from the rapid expansion of video streaming and voice services. In the *Open Internet NPRM*, the Commission acknowledged these changes, stating that:

Real-time entertainment (that is, programming that is viewed as it is delivered, such as video streamed by Netflix and Hulu) grew from 42.7 percent of the downstream fixed access traffic at peak time (generally 8:00 p.m. to 10:00 p.m.) in 2010 to 67 percent of the downstream fixed access traffic at peak time by September 2013. VoIP usage has similarly continued to increase.<sup>18</sup>

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<sup>16</sup> See FCC Industry Analysis and Technology Division, Wireline Competition Bureau, *Internet Access Services: Status as of June 30, 2013* (June 2014) at 25 (Table 7). The data for this Report were based solely on information reported in FCC Form 477.

<sup>17</sup> WISPA Revised Framework Comments at 5, *citing* information derived from the Terrestrial Fixed Wireless-Licensed and Unlicensed layers of the National Broadband Map (Round 7).

<sup>18</sup> *Open Internet NPRM* at 12 (footnotes omitted).

If WISPs are to expand their networks to other areas where access and choice are lacking and keep pace with the explosive growth in consumer demand for more and more capacity, additional spectrum resources must be made available. WISPs have proved their ability “to boldly go where no man has gone before,” and history demonstrates that they will undoubtedly use the 3550-3650 MHz band to meet demand if the Commission’s rules are crafted to facilitate such deployment.

## **2. WISP Deployment In The Adjacent 3650-3700 MHz Band Demonstrates Strong Interest In Deploying Higher-Power Service In The 3550-3650 MHz Band.**

WISPs are already using the adjacent 3650-3700 MHz band to provide fixed broadband services, and will be among the first to deploy higher-power services in rural areas in the 3550-3650 MHz band. According to Commission staff, as of June 19, 2014, there were 2,598 active licenses and 45,184 locations registered in the Universal Licensing System (“ULS”),<sup>19</sup> numbers that have grown from nothing when the 3650-3700 MHz band was first made available for commercial use in late 2007.<sup>20</sup> Much if not most of this spectrum use is by WISPs.

This deployment has occurred because of the Commission’s novel licensing scheme and in spite of geographic restrictions that prevent ubiquitous deployment.<sup>21</sup> The non-exclusive “light-licensing” regime represented the Commission’s first qualified success in spectrum sharing. Notably, the “light-licensing” process was developed before the advent of a more sophisticated geolocation spectrum database that governs the shared commercial use of the TV band among broadcasters and unlicensed users.<sup>22</sup> Moreover, while the presence of FSS

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<sup>19</sup> See Letter from John J. Schauble, Deputy Chief, Broadband Division, to Mitchell Lazarus, Esq., DA 14-871 (June 23, 2014) at 1.

<sup>20</sup> See *Public Notice*, “Wireless Telecommunications Bureau Announces Start Date for Licensing and Registration Process for the 3650-3700 MHz Band,” DA 07-4605 (rel. Nov. 14, 2007 (“*3650 MHz Licensing PN*”).

<sup>21</sup> See Section 90.1331 (establishing federal and FSS exclusion zones).

<sup>22</sup> See Section 15.713.



exclusion zones in the 3650-3700 MHz band has stifled and slowed deployment in some areas of the country, consumers in other parts of the country have benefited from the ability of WISPs to deploy fixed service.

This combination of factors strongly suggests that, if the proper rules and transition process are implemented, existing higher-power services in the 3650-3700 MHz band can be expanded to include the 3550-3650 MHz band. WISPs are familiar with equipment capabilities, propagation characteristics and installation practices, and the addition of adjacent spectrum will ensure rapid deployment once SAS management capability is available.

### **3. Higher-Power Equipment Can Be Expeditiously Certified And Deployed.**

Higher-power equipment for rural areas can be made available for commercial deployment in an expeditious manner. Equipment for fixed broadband use is already significantly deployed in the 3650-3700 MHz band in the United States. There is little doubt that a vibrant and competitive market for higher-power fixed equipment will develop as manufacturers see the business opportunity presented by an additional 100 megahertz of spectrum and modify existing equipment to meet SAS and other Part 96 requirements.

By contrast, as WISPA previously explained, it is unlikely that small cells will be deployed in rural areas any time soon.<sup>23</sup> Small cells are intended primarily to handle increased capacity in urban areas for mobile and portable uses, a very different business model than the more fundamental provision of fixed broadband to residences, farms and businesses in rural areas. Moreover, small cells would lack the power to efficiently and affordably cover large areas with sparse population.

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<sup>23</sup> WISPA Revised Framework Comments at 6.

**B. The Commission Must Revise Its Proposed Technical Rules For Higher-Power Operations.**

The *FNPRM* reflects the Commission's objective of allowing higher-power Priority Access and GAA operations in defined rural areas, but the proposed rules do not enable this goal to be achieved to the extent needed. First, the table in Proposed Section 96.38(b) would set a maximum EIRP of 23 dBm/10 MHz for all end user devices, regardless of whether they are communicating with "baseline" CBSDs or rural area CBSDs, and regardless of whether they are fixed or mobile.<sup>24</sup> Thus, even though the maximum EIRP for CBSDs in rural areas is proposed to be 47 dBm/10 MHz, a fixed end user device transmitting at only 23 dBm/10 MHz EIRP would not be able to reliably communicate back to the CBSD. This effectively reduces the link distance and reliability to the least common denominator of 23 dBm/10 MHz EIRP, such that any benefits intended by the potential operation of the CBSD at 47 dBm/10 MHz are negated. By comparison, the rules for the 3650-3700 MHz band establish a uniform power level of 1 Watt per MHz (25 watts/25 MHz) for all fixed stations, whether located at the base station or at the end user's location.<sup>25</sup>

The Commission offers no rationale for this oversight. If the Commission intends to dictate a single, mobile standard for all end user devices to drive a single equipment market, its efforts are misguided and directly contravene the desire to enable flexible use of the 3550-3650 MHz band. If the Commission intends to ensure that end user devices are interoperable regardless of whether they are deployed in rural or non-rural areas and whether they are fixed or mobile, such desire to harmonize misses the point – that two different equipment markets will emerge, one for higher-power fixed operations in rural areas and another for fixed or mobile

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<sup>24</sup> See *FNPRM*, Appendix A, Proposed Section 96.38(b).

<sup>25</sup> See Section 90.1321(a).

small cell use in non-rural areas, both of which will be able to operate across all frequencies under SAS governance protocols.

To remedy this flaw, the Commission should, consistent with its proposal to establish three different maximum power levels for CBSDs, conform its end user power levels so they can effectively communicate with the corresponding CBSD. For rural areas, the Commission should modify Proposed Section 96.38(b) so that the maximum conducted output power is 30 dBm/10 MHz with a maximum EIRP for end user devices of 47 dBm/10 MHz. Any EIRP less than this value would neutralize any benefits intended by the higher maximum power level proposed for CBSDs in rural areas.

**C. The SAS Should Be More Robust Than Proposed To Promote Spectrum Efficiency And Interference Mitigation.**

WISPA supports the Commission's proposal to incorporate SAS requirements into its rules,<sup>26</sup> but believes that the rules should specify additional information that CBSDs must provide to the SAS in order to ensure that spectrum efficiency can be maximized. Proposed Section 96.36(c) states that CBSDs "must provide the SAS with its geographic location, antenna height above ground level (meters), requested authorization status (Priority Access or General Authorized Access), unique FCC identification number, and unique serial number."<sup>27</sup> In addition to this information, and consistent with the WISPA Technical Paper,<sup>28</sup> WISPA proposes that CBSDs also provide the SAS with the following information:

- Transmitter conducted power level;
- Channel width;
- Net antenna system gain;

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<sup>26</sup> See *FNPRM* at 28.

<sup>27</sup> *Id.* at Appendix A, Proposed Section 96.36(c). See also *id.* at 20.

<sup>28</sup> See WISPA Technical Paper at 3.

- Antenna azimuth;
- Antenna polarization;
- Antenna horizontal and vertical beamwidth;
- Antenna height above average terrain<sup>29</sup>
- Antenna downtilt; and
- AU technical contact information.

The integration of this information into the SAS would promote higher spectral efficiency in the 3550-3650 MHz band. By contrast, an SAS that treats every antenna as if it were an omnidirectional antenna would be dramatically less spectrally efficient by negating the interference-reduction benefits that directional antennas clearly provide. This limitation is illustrated in the TV band, where the TV white space database has rendered some channels unavailable for unlicensed use whereas the incorporation of directional antenna information (a directional antenna oriented away from the protected contour) could make a channel available for unlicensed use. As another example, an SAS that cannot distinguish between horizontal and vertical polarization will not permit CBSDs to be deployed in areas where cross-polarization would provide effective interference protection.<sup>30</sup>

The Commission also should require the SAS to manage interference among GAA users. Under Proposed Section 96.48(e), the SAS would be required to “follow a process for registering and *coordinating* General Authorized Access Users.”<sup>31</sup> In Proposed Section 96.23(e)(2), however, the Commission proposes that GAA users “shall have *no expectation of interference*

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<sup>29</sup> WISPA does not oppose the Commission’s proposal to include height above ground level in the SAS as an alternative to height above average terrain.

<sup>30</sup> Discussion of other proposed technical rules is in Section VI, *infra*.

<sup>31</sup> *FNPRM*, Appendix A, Proposed Section 96.48(e) (emphasis added).



*protection* from any other users,” presumably to include other GAA users.<sup>32</sup> The Commission does not define “coordinating” or attempt to further explain the potential ambiguity of these two proposed rules, leaving open the important question of the specific obligations of the SAS.

WISPA strongly believes that the SAS coordination functions should identify and mitigate instances of interference that may occur between or among GAA users whenever possible. An example would occur whenever multiple GAA users within a census tract seek to register devices with the SAS. When potential interference is identified, the SAS should first determine whether other GAA channels are available to eliminate the interference, and dynamically reassign GAA users to other GAA spectrum in the census tract to eliminate the potential for interference. If no such channels are available, the SAS would inform the contact person for each affected GAA user that potential interference may exist. The affected GAA users would then have an opportunity to discuss potential solutions in good faith, and either accept the *status quo* or propose solutions to the SAS that the SAS would then enforce so long as additional instances of interference are not created. The SAS should not, however, have the right to unilaterally change transmit power or EIRP. Because of the potential affect reducing power would have on commercial operations, any such decisions should be left to the affected parties.<sup>33</sup>

By adopting this process, the SAS can increase the reliability of service offered within the GAA tier without having any adverse effect on Incumbent Access and Priority Access use. The Commission has the opportunity to upgrade GAA use from the traditional *ad hoc* unlicensed model to one that dynamically “coordinates” use until spectrum constraints require human intervention. WISP recommends that the Commission include these specific interference

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<sup>32</sup> *Id.* at Appendix A, Proposed Section 96.23(e)(2) (emphasis added).

<sup>33</sup> See Section VI, *infra*.

mitigation techniques into Section 96.48(e) and require SAS administrators to incorporate such functionality in the SAS.

## **II. THE COMMISSION SHOULD ADOPT ITS PROPOSED PART 96 GENERAL RULES, WITH SOME CLARIFICATIONS.**

The Commission seeks comment on its proposed General Rules for Part 96. WISPA addresses each proposed rule in the section that follows.

*Proposed Section 96.1 – Scope* – As the Commission is aware, WISPA has been an ardent supporter of the three-tiered SAS, which establishes a hierarchical spectrum management regime that protects incumbents and allows for exclusive Priority Access use and non-exclusive and opportunistic GAA use. WISPA agrees with the Commission’s proposed rule, but suggests that the Commission include a definition of “harmful interference” or clarify that this term is defined in Section 2.1 in order to provide guidance to SAS administrators and CBSD users, and to avoid future disputes.<sup>34</sup>

*Proposed Section 96.3 – Definitions* – WISPA suggests changes to the following proposed definitions.

For the definition of “*Census tract*,” the Commission should clarify that it will utilize the census tracts used for the 2010 Census. Over time, census tracts may change, but the geographic unit the Commission utilizes for initial and subsequent licensing should remain fixed. This will avoid confusion that could arise in the future concerning which census data should apply. As noted in the WISPA Revised Framework Reply Comments, the Commission has taken a similar approach in licensing Basic Trading Areas for the PCS, 800 MHz SMR and LMDS services by

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<sup>34</sup> “Harmful interference” is defined in Section 2.1 as “[i]nterference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with [the ITU] Radio Regulations.”

designating a specific edition of the Rand McNally *Commercial Atlas and Marketing Guide* as the static reference.<sup>35</sup>

The definition of “*Contained Access Facilities*” should be clarified to ensure that the “core mission operations” are those applicable to the Contained Access User. This can be accomplished by inserting the word “their” before “core mission operations” in the proposed definition.<sup>36</sup>

The definition of “*Incumbent User*” should contain a cross-reference to Proposed Section 96.20(a) to indicate that Grandfathered Wireless Broadband Licensees will have Incumbent User status during the transition period, as the Commission proposes.<sup>37</sup> This will ensure that all categories of Incumbent Users are identified in the same location in the rules.

In its previous Comments, WISPA proposed to define “Rural Area” in the same manner that the Rural Utilities Service defines “rural area” for purposes of its Community Connect program. This definition deems an area “rural” if it “is not located within: (i) A city, town, or incorporated area that has a population of greater than 20,000 inhabitants; or (ii) An urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants.”<sup>38</sup> WISPA maintains its belief that this definition would be easy to incorporate into the SAS and would offer greater flexibility than the county-based definition the Commission proposes. Further, unlike the definition the Commission suggests, WISPA’s proposed definition would exclude counties that have urban areas that, if calculated separately, would have a population density of greater than 100 persons per square mile.

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<sup>35</sup> See WISPA Revised Framework Reply Comments at 16, citing *Amendment of Parts 21 and 74 of the Commission’s Rules with Regard to Filing Procedures in the Multipoint Distribution Service and the Instructional Television Fixed Service*, 10 FCC Rcd 9589, 9608 (1995).

<sup>36</sup> See further discussion in Section V, *infra*.

<sup>37</sup> See *FNPRM* at 51.

<sup>38</sup> See 7 C.F.R. § 1739.3 (emphasis added). See also WISPA NPRM Comments at 14; WISPA Revised Framework Comments at 8.

If the Commission nevertheless adopts its proposed definition of “*Rural Area*,” it should be clarified to read as follows (new language underscored; deleted language stricken):

Rural Area: For purposes of this part, a Rural Area is defined as a Census tract or portion of a Census tract that is within a county (or equivalent) with a population density of 100 persons per square mile or less, based upon the ~~most recently available Census data~~ 2010 Census.

These proposed minor changes would accomplish two objectives. First, they ensure that the rules applicable in “rural areas” fit into the census tract licensing scheme that the Commission plans to use, and thereby simplifies the licensing process and the SAS. Second, like WISPA’s proposed definition of census tract, “rural areas” would be fixed as of a date certain to prevent disruptive changes to the licensing process and SAS if those Census tracts change over time.

*Proposed Section 96.5 – Eligibility* – As discussed in its prior Comments, WISPA supports open eligibility for Priority Access licensees and GAA users.<sup>39</sup>

*Proposed Section 96.9 – Regulatory Status* – As is the case with other wireless services, the Commission should permit PAL holders to select whether to provide service on a common carrier or non-common carrier basis.<sup>40</sup> Applicants for PALs can select their regulatory status in their applications, and then modify the authorization if they desire to subsequently change carrier status. There would be no separate need to add carrier status to the SAS.

However, in response to the Commission’s question,<sup>41</sup> GAA users should be deemed non-common carriers. Because there is no application filed for GAA use, the Commission has no process readily available to accept and track submissions by GAA users, and the costs of requiring a separate submission to report regulatory status far outweigh any benefits that such reporting might bring.

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<sup>39</sup> See WISPA Revised Framework Reply Comments at 12.

<sup>40</sup> See Section 27.10; 3650 MHz Licensing PN at 5-6.

<sup>41</sup> See FNPRM at 10.



*Proposed Section 96.13 – Frequency Assignments* – The Commission seeks comment on its proposal to set aside 50 percent of the “available” spectrum for GAA use.<sup>42</sup> As the Commission indicates, in its previous Comments WISPA recommended that 50 megahertz be designated for GAA use in non-rural areas and 70 megahertz reserved for GAA use in rural areas.<sup>43</sup> WISPA generally agrees that a minimum of 50 percent of the available 3550-3650 MHz spectrum in a given census tract should be the minimum amount of spectrum available for GAA use. This will encourage expeditious deployment of services and provide WISPs and other users with a choice in the use tier they desire.

WISPA also agrees with the Commission’s proposal to dynamically assign PAL and GAA spectrum “in real time to promote efficient spectrum use.”<sup>44</sup> WISPA reiterates its support for the assignment of unpaired 10-megahertz channels, for both PAL and GAA use.<sup>45</sup>

A census tract should be deemed “available” for purposes of this rule if any part of the census tract is unencumbered by (a) any Incumbent Access exclusion zone, and (b) if the 3650-3700 MHz band is included in the overall framework applicable to the 3550-3650 MHz band, any area within the service contours of a Grandfathered Wireless Broadband Provider. In other words, in calculating the amount of spectrum available for GAA use, and assuming the inclusion of the 3650-3700 MHz band, the Commission should first subtract any spectrum used by any Incumbent Access user and by any Grandfathered Wireless Broadband Provider, and 50 percent of any remaining spectrum would be available for GAA use.

The Commission seeks comment on what should constitute “use” for purposes of allowing GAA use on spectrum assigned to a PAL.<sup>46</sup> The WISPA Technical Paper noted that:

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<sup>42</sup> See *id.* at 12.

<sup>43</sup> See *id.*, citing WISPA Revised Framework Comments at 14.

<sup>44</sup> *Id.* at 11.

<sup>45</sup> See WISPA Revised Framework Comments at 14; WISPA Revised Framework Reply Comments at 16.

“[t]he management or system administration database of virtually all modern wireless equipment collects statistics about traffic levels such as the number of packets exchanged and the number of connected devices” and stated that “the SAS can differentiate between [base stations or access points] that are handling actual, real-world customer traffic and which [base stations or access points] are simply ‘idling’ and not serving real, end-user needs.”<sup>47</sup> To add specificity to this recommendation, WISPA proposes that any CBSD that has not received 300 end-user packets within each five-minute interval would be deemed by the SAS to be not “in use.” SAS administrators should be required to generate email notices to GAA users any time channel assignments are dynamically reassigned.

### **III. THE COMMISSION SHOULD ADJUST ITS PROPOSED INCUMBENT PROTECTION RULES.**

In the *FNPRM*, the Commission proposes “[a]s an initial matter . . . at this time” to use the exclusion zones described in the Fast Track Report to protect federal incumbents, and proposes generally to protect existing fixed satellite service earth stations from harmful interference.<sup>48</sup> WISPA strongly advocates adopting interference protection criteria that are based on “real-world” incumbent use. By relying on the laws of physics and the SAS, incumbents can continue to enjoy protection from harmful interference and Citizens Broadband Radio Services can be extended over a larger geographic area. WISPA discusses each of the Commission’s proposed rules below.

*Proposed Section 96.15 – Protection of Federal Incumbents* – In proposing to rely on the recommendations in the Fast Track Report, the Commission has unfortunately defaulted to a report premised on flawed assumptions. First, the Fast Track Report depicts exclusion zones

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<sup>46</sup> See *FNPRM* at 13. See also *FNPRM*, Appendix A, Proposed Rules 96.13(c) and 96.33(b).

<sup>47</sup> WISPA Technical Paper at 5.

<sup>48</sup> *FNPRM* at 13.

along the U.S. coastlines to protect mobile, WiMAX equipment operating at high power (up to 46 dBm for a 20 megahertz channel) from interference that would be caused by U.S. Navy radar systems.<sup>49</sup> As WISPA explained to the Commission in commenting on the Fast Track Report, “[b]y relying on mobile WiMAX technical assumptions for its 3550-3650 MHz analysis, NTIA’s Fast Track Report neglected to consider other viable technologies and uses, including use of the spectrum for fixed broadband uses such as those deployed in the adjacent 3650-3700 MHz band.”<sup>50</sup> More recently, Commissioner Pai criticized the Commission’s proposal to continue to rely on “enormously large protection zones . . . based on [NTIA’s] analysis and modeling of a specific type of commercial use – one that involved high-power, high-site, macro-cell deployments.”<sup>51</sup> Likewise, Commissioner O’Rielly expressed “worry that the proposed exclusion zones are too large to attract adequate interest and investment in this band.”<sup>52</sup>

Both Commissioners Pai and O’Rielly cite testing indicating that low-power small cells will not require such large exclusion zones to protect federal incumbents.<sup>53</sup> While that may be true, WISPA is not aware of any public reports of testing to determine the extent to which higher-power fixed operations – such as those the Commission proposes for rural areas – may cause interference to or receive interference from naval radar systems.

WISPA believes that it is not necessary to preclude all commercial uses at all times along all coastal waters, regardless of whether the commercial use is low-power small cells or higher-power operations in rural areas. An NTIA report demonstrated that along the coast near San Diego – a “presumably high-usage mostly military spectrum environment” – mean band

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<sup>49</sup> See Fast Track Report at 1-7; Fast Track Report at B-1.

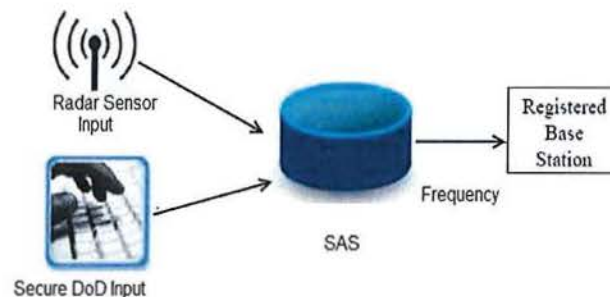
<sup>50</sup> WISPA Fast Track Comments at 5.

<sup>51</sup> *FNPRM* at 86 (Concurring Statement of Commissioner Ajit Pai).

<sup>52</sup> *Id.* at 88 (Concurring Statement of Commissioner Michael O’Rielly).

<sup>53</sup> See *id.* at 86, 87 (Concurring Statement of Commissioner Ajit Pai); *id.* at 88 (Concurring Statement of Commissioner Michael O’Rielly).

occupancy for naval radar signals ranged from 7.5 percent on weekends to 36.6 percent on weekdays.<sup>54</sup> WISPA believes that, once interference thresholds are determined, protection data for both small cells and higher-power operations can be readily and inexpensively incorporated into the SAS to allow for operations within coastal exclusion zones. The SAS can be configured to receive military radar usage information securely from either or both secure manual “frequency in use” SAS inputs and/or automatic secure spectrum sensing inputs that would notify the SAS that existing shared commercial use must be modified or discontinued in parts of the exclusion zone within designated time periods in order to avoid causing harmful interference to or receiving interference from naval radar operations.<sup>55</sup> A diagram illustrating how these secure manual and automatic spectrum sensing database inputs would function follows:



As WISPA previously discussed, when the SAS receives information that military usage is occurring or is about to occur, the SAS could dynamically assign PAL holders and GAA users to other spectrum or, if no non-interfering spectrum was available, the PAL holder or GAA user would have to temporarily cease transmissions.<sup>56</sup>

<sup>54</sup> NTIA, Spectrum Occupancy Measurements of the 3550-3650 Megahertz Maritime Radar Band near San Diego, California, NTIA Report TR-14-500 (January 2014) at 31.

<sup>55</sup> See *FNPRM* at 4 (requesting comment on “further developments that would enable a reduction in the size of the Exclusion Zones”).

<sup>56</sup> See WISPA NPRM Comments at 9-10.



*Proposed Section 96.17 – Protection of Existing FSS Earth Stations in the 3550-3650 MHz Band* – WISPA agrees that the SAS can and should enforce operational restrictions to prevent interference to grandfathered FSS earth stations. Any such restrictions, however, should take into account the protective effects of terrain and other factors to create “real-world” protection zones. In so doing, the Commission can avoid the arbitrary circular zones that currently overprotect FSS earth stations in the 3650-3700 MHz band.

Further, WISPA agrees that the Commission should adopt its proposal to inform SAS administrators on an annual basis that the earth stations are in “actual use” in order to retain protection from interference.<sup>57</sup> A nominal reporting obligation would go far in ensuring that non-operating earth stations do not foreclose areas that could otherwise be served by PALs and GAA users without the need to obtain prior consent.

WISPA also agrees that operations inside of any protection zones should be permitted upon agreement between the CBSD user and the FSS earth station licensee, as the Commission currently allows in the 3650-3700 MHz band.<sup>58</sup> Proposed Section 96.17 should, however, be harmonized with Section 90.1331(a)(2) to require such negotiations to be conducted in good faith. Over time, Grandfathered Wireless Broadband Providers have successfully negotiated with earth station licensees for operations within the existing 3650-3700 MHz protection zones, and a good faith negotiation requirement has contributed to that success. Of course, limiting the size of protection zones based on “real world” protection criteria also would limit the areas where agreements would be required to be negotiated and therefore expedite service to the public. As the Commission proposes, the SAS should enforce any such agreements.

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<sup>57</sup> See *FNPRM*, Appendix A, Proposed Section 96.17(a).

<sup>58</sup> See Section 90.1331(a). WISPA previously urged the Commission to adopt such flexibility. See WISPA NPRM Comments at 10.

*Proposed Section 96.19 – Operation Near Canadian and Mexican Borders* – WISPA encourages the Commission to expeditiously negotiate coordination agreements with Canada and Mexico. Such agreements could include the registration in the SAS of Canadian and Mexican 3550-3650 MHz stations near the international borders in the same manner that Grandfathered Wireless Broadband Providers would register their service contours in the SAS.<sup>59</sup>

**IV. THE COMMISSION SHOULD ADOPT ITS PROPOSED RULES FOR PRIORITY ACCESS AND SHOULD ADOPT SIMPLE AUCTION RULES THAT PROMOTE FAIRNESS.**

The Commission proposes rules for Priority Access that “are generally consistent with the Revised Framework.”<sup>60</sup> WISPA supported those proposals, and does so here with certain minor additional recommendations.

*Proposed Section 96.21 – Authorization* – The Commission should not restrict eligibility for PALs, but rather should encourage as broad a group as possible to apply for PALs, consistent with statutory requirements such as the foreign ownership restrictions applicable to common carrier licensees.<sup>61</sup>

*Proposed Section 96.23 – Priority Access Licenses* – The Commission proposes to adopt census tracts as the geographic unit for licensing PALs.<sup>62</sup> WISPA supported this position in the past, stating that “[a]lthough no geographic unit is perfect for every situation, licensing PALs by census tract strikes the right balance between too large and too small.”<sup>63</sup> WISPA continues to agree that census tracts can effectively be used as geographic “building blocks” that can be aggregated to include larger contiguous footprints, or leased, partitioned and disaggregated to

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<sup>59</sup> See Section VII, *infra*.

<sup>60</sup> FNPRM at 14.

<sup>61</sup> See Section II, *supra*.

<sup>62</sup> See FNPRM at 14.

<sup>63</sup> WISPA Revised Framework Comments at 7.

allow third party spectrum usage under the Commission's secondary market rules.<sup>64</sup> While assigning PALs by more granular "pixels" or other smaller unit might be adequate for non-rural areas,<sup>65</sup> this would be inappropriate for rural areas where the benefits of higher-power operations could be unnecessarily confined within smaller geographic areas. As WISPA previously stated, "using areas smaller than census tracts such as standardized grids or census blocks would vastly increase the number of licensed areas, complicate the license allocation process and add to the Commission's administrative burdens."<sup>66</sup> The "middle ground" proposed by the Commission continues to be the best option for licensing PALs.<sup>67</sup>

In its previous Comments, WISPA strongly supported the Commission's proposal to have the SAS assign PALs in unpaired 10-megahertz channels,<sup>68</sup> and it reiterates its support here. Using a common channel width allows users to readily aggregate PALs and GAA spectrum as capacity needs change, without requiring the SAS to make complicated decisions as would be the case if no standard channel width were utilized.

WISPA emphasizes its strong support for dynamic frequency assignment of PALs and GAA users by the SAS to maximize spectral efficiency and enforce the SAS hierarchy.<sup>69</sup> WISPA also endorses the Commission's more detailed proposals to have the SAS make "reasonable efforts" to assign geographically contiguous PALs held by the same licensee to the same frequencies if desired by the licensee, and to assign multiple channels held by the same PAL holder to contiguous frequencies if desired by the licensee.<sup>70</sup> Assigning the same channels to a PAL holder that is authorized in contiguous census tracts will eliminate the need for the

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<sup>64</sup> See *id.* at 15.

<sup>65</sup> *FNPRM* at 15.

<sup>66</sup> WISPA Revised Framework Comments at 7. See also WISPA Revised Framework Reply Comments at 15.

<sup>67</sup> See *FNPRM* at 15.

<sup>68</sup> See WISPA Revised Framework Comments at 14.

<sup>69</sup> See *FNPRM* at 16.

<sup>70</sup> Proposed Section 96.23(c)(1)(i) and (c)(2)(i). See also *FNPRM* at 16.

licensee to comply with signal strength limits along some census tract borders, so long as the SAS does not subsequently change a user's operating frequencies to eliminate cross-border co-channel operations. Likewise, the SAS should endeavor to "stack" a PAL holder's spectrum on adjacent channels to promote channel bonding if desired by the operator. The ability of the SAS to perform these functions should be tested during the trial phase by entities that are tentatively selected to be SAS administrators.

WISPA previously proposed that the Commission adopt one-year non-renewable license terms "stackable" to four years.<sup>71</sup> The Commission's proposal to allow one-year terms to be aggregated for five consecutive years is acceptable.<sup>72</sup> WISPA agrees that this temporal aggregation limit appropriately "balances the competing public interest concerns expressed in the record" by creating the certainty of longer-term licenses that can attract third-party financing and the flexibility to have shorter terms of a year or two.<sup>73</sup> Applicants also would not be required to pay for long-term licenses upfront for spectrum they may not immediately need, but can rely on a "pay as you go" model that could spread license acquisition payments out over a number of years.

*Proposed Section 96.27 – Competitive Bidding Procedures* – WISPA generally supports use of the Commission's existing rules combined with a streamlined competitive bidding process for mutually exclusive applications for PALs.<sup>74</sup> Because PALs would not be assigned for specific channels, WISPA reiterates its support<sup>75</sup> for the Commission's proposal to determine mutual exclusivity if the total number of applicants exceeds the total number of PALs offered in

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<sup>71</sup> See WISPA Revised Framework Comments at 14-15.

<sup>72</sup> See *FNPRM* at 17.

<sup>73</sup> *Id.*

<sup>74</sup> See *id.* at 17-18.

<sup>75</sup> See WISPA Revised Framework Comments at 17.

a given census tract for a given year.<sup>76</sup> Applications determined to not be mutually exclusive should be granted expeditiously.

The Commission seeks comment on competitive bidding design options.<sup>77</sup> WISPA details below a competitive bidding plan appropriate for the 3550-3650 MHz band that will promote fairness, integrity and expedition in the award of PALs.

Because of the large number of census tracts, the short term of the PALs offered and the annual frequency of competitive bidding, WISPA recommends that the Commission adopt streamlined competitive bidding procedures to facilitate the expeditious grant of applications and to allow unsuccessful applicants to deploy on the remaining GAA spectrum if they so choose. WISPA suggests a two-round sealed bid auction. For the first round, applicants for a given census tract would submit an initial bid under seal. The Commission would then review the applications to determine each applicant's eligibility and the number of eligible applicants, and would then provide the amount of the high bid (but not the identity of the bidder) in each census tract to all mutually exclusive applicants deemed to be eligible. At that point, mutually exclusive applicants that had not submitted the high bid could either withdraw from the bidding or continue in the competitive bidding process. If the withdrawal of applications removed the mutual exclusivity, the Commission would grant licenses to the remaining applicants (but not the withdrawing bidders) without requiring a payment. If, however, mutually exclusive applications remained, the Commission would conduct a second and final sealed bidding round in which the eligible applicants could increase their bids. The Commission would then grant licenses to those bidders submitting high bids for the PALs, and dismiss the applications that were not successful.

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<sup>76</sup> See *FNPRM* at 37.

<sup>77</sup> See *id.*

Under this approach, the Commission would not establish a reserve price because of the different uses contemplated by the flexible technical rules; rather, the market would set the price. In response to the Commission's question, WISPA believes that package bidding would be inappropriate under WISPA's proposal.<sup>78</sup>

If the Commission adopts Proposed Section 96.29 to limit the number of channels any PAL holder can aggregate in a census tract at a given time, it will be necessary to enforce the affiliation rules in Section 1.2110 to ensure that an entity does not hold disclosable interests in multiple entities in order to avoid application of the 30-megahertz spectrum cap.

Instead of collecting upfront payments, the Commission should revise its payment rules to require payment for winning bids on an annual basis after the competitive bidding process is completed.<sup>79</sup> The Commission would be relieved of the obligation to process a large number of refund requests from applicants that were not subject to competitive bidding, unsuccessful bidders and from successful bidders with high bids less than the amount of an upfront payment. This administrative burden would be exacerbated because, unlike other spectrum auctions, competitive bidding for 3550-3650 MHz PALs would occur annually. For PALs awarded over multiple consecutive years, payments would be made annually by a date certain, similar to regulatory fees and other monetary obligations that are paid annually to the Commission.

*Proposed Section 96.29 – Aggregation of Priority Licenses* – Contrary to Comments filed in response to the Revised Framework, the Commission proposes to adopt a 30-megahertz cap on the amount of Priority Access spectrum a licensee can hold at a given time in a given market.<sup>80</sup> Notwithstanding its earlier proposal for a 10-megahertz cap in rural markets and a 20-

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<sup>78</sup> See *id.* at 15.

<sup>79</sup> See *id.* at 39.

<sup>80</sup> See *id.* at 18.



megahertz cap in non-rural markets,<sup>81</sup> WISPA is willing to accept the Commission's proposal as a reasonable limitation on the amount of PAL spectrum that should be licensed to any single entity (and its affiliates).

As an exception to this rule, the Commission should allow Grandfathered Wireless Broadband Providers in the 3650-3700 MHz that certify use of more than 30 megahertz within a census tract to retain that spectrum under Priority Access licensing so that they can maintain an equivalent level of service to their customers. As stated in Section VII, *infra*, Grandfathered Wireless Broadband Providers that have invested significant resources and developed a stable broadband service business should not be subject to any diminution in service reliability that would result from being required to transition some or all of their services and subscribers to the GAA tier.

## **V. THE COMMISSION SHOULD MODIFY ITS PROPOSED RULES FOR GENERAL AUTHORIZED ACCESS AND CONTAINED ACCESS USE TO PROMOTE GREATER USE OF THE SPECTRUM.**

The Commission seeks comment on its proposed rules for GAA use and Contained Access Use.<sup>82</sup> WISPA agrees with many of the Commission's proposals, but believes that spectrum for Contained Access Use should be included within the Priority Access spectrum pool. WISPA provides specific comment on each of the Commission's proposed rules below.

*Proposed Section 96.31 – Authorization* – WISPA agrees with the Commission's determination to authorize GAA use as "license by rule" under Proposed Section 95.401 instead of authorizing devices under Part 15. From an administrative standpoint, the Commission and the public would benefit from including all of the rules for the 3550-3650 MHz band in "a more unified authorization framework for multiple tiers of users that might otherwise fall into different

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<sup>81</sup> See WISPA Revised Framework Reply Comments at 14.

<sup>82</sup> See *FNPRM* at 18.

parts of the Commission's rules."<sup>83</sup> Further, as stated in the *NPRM*, the Commission's Table of Frequency Allocations confers greater interference protection status for "license by rule" than unlicensed operations.<sup>84</sup>

WISPA concurs with the Commission's proposed rule and agrees that there should be no difference in the eligibility requirements for PALs and GAA use. The Commission should adopt its proposal to require CBSDs used for GAA use to register with the SAS.

*Proposed Section 96.33 – General Authorized Access Use* – In Proposed Section 96.33(b), the Commission proposes to allow GAA users to have opportunistic use of frequencies assigned to PALs when the SAS determines that such frequencies are not "in use."<sup>85</sup> Throughout this proceeding, WISPA has strongly supported this "use it or share it approach"<sup>86</sup> in conjunction with the Commission's proposal to not impose build-out requirements on PALs that would encourage "license savers" that provide no public benefit but encourage foreclosure of spectrum use by third parties. WISPA continues to believe that these policies and rules will promote greater use of spectrum that would remain fallow under a traditional "command and control" licensing approach.<sup>87</sup>

*Proposed Section 96.35 – Contained Access Facilities (CAFs)* – In its previous Comments, WISPA opposed any spectrum reservation in the 3550-3650 MHz band for "mission critical" services, and supported open eligibility in the Priority Access and GAA tiers.<sup>88</sup> WISPA noted that, to enable certain uses, "PAL holders could lease or partition discrete areas to utilities

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<sup>83</sup> *NPRM* at 15599. See also WISPA *NPRM* Comments at 5-6.

<sup>84</sup> See *NPRM* at 15599.

<sup>85</sup> *FNPRM*, Appendix A, Proposed Section 96.33(b).

<sup>86</sup> See WISPA Revised Framework Comments at 16; WISPA Revised Framework Reply Comments at 20.

<sup>87</sup> WISPA discusses the definition of "use" and the "expectation of interference protection" elsewhere in these Comments. See *FNPRM*, Appendix A, Proposed Sections 96.33(c) and (d).

<sup>88</sup> See WISPA Revised Framework Reply Comments at 13.

and any other third party in order to meet their internal or external communications needs.”<sup>89</sup>

Commissioner Pai also questioned the Commission’s “proposal to carve out 20 MHz of spectrum as a set aside for certain groups of preferred users. I am skeptical that these attempts to pick winners and losers will serve the public interest.”<sup>90</sup> Commissioner O’Rielly expressed similar views: ““Why not eliminate Contained Access User set-asides and allow GAA or PAL providers to offer services to these users? Similarly, if critical users have a need, why can’t they apply for GAA spectrum or PALs?”<sup>91</sup>

In the *FNPRM*, the Commission proposes to allow Contained Access Users to obtain access to 20 megahertz of GAA spectrum.<sup>92</sup> WISPA believes that, if the Commission does not rely on the secondary market to provide spectrum to Contained Access Users, any spectrum reservation should come from the Priority Access pool, not from GAA spectrum. Contained Access Users would obtain the benefits of interference protection from GAA users, something that Proposed Section 96.35 would not permit, and also would be protected from interference by the SAS as among other Priority Access users. This would give Contained Access Users higher service reliability for their internal communications without encumbering the GAA spectrum pool.

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<sup>89</sup> *Id.* The Commission seeks comment on whether to apply or adopt rules to facilitate secondary market transactions. *See FNPRM* at 42. WISPA believes that secondary markets can be an effective way for Priority Access licensees to acquire spectrum in nearby areas, or to partition spectrum to other users within a census tract. Similarly, licensees should have the ability to disaggregate spectrum within a census tract if it desires to make a portion of its spectrum available to another party. As the Commission states, “the secondary market could provide a viable means of matching supply and demand in units more granular than our proposed PAL structure.” *Id.* WISPA previously suggested that any such secondary market transactions be permissible upon written notice to the Commission and the SAS administrator. *See WISPA NPRM Comments* at 15.

<sup>90</sup> *FNPRM* at 87 (Concurring Statement of Commissioner Ajit Pai).

<sup>91</sup> *Id.* at 89 (Concurring Statement of Commissioner Michael O’Rielly).

<sup>92</sup> *See id.* at 19.

The Commission seeks comment on who should be eligible to be a Contained Access User and identify those locations that are eligible to be Contained Access Facilities.<sup>93</sup> The definitions in Proposed Section 96.3 are too general to provide the public with sufficient notice of eligible Contained Access Users and eligible Contained Access Facilities. In the *FNPRM*, the Commission mentions “hospitals, public safety organizations, and local governments” as examples of Contained Access Users.<sup>94</sup> WISPA believes that Contained Access Users should be limited to “hospitals, utilities, public safety organizations and local governments” providing internal, non-commercial communications in support of their core activities. The definitions in Proposed Section 96.3 should be clarified to prevent any ambiguity.

## **VI. THE COMMISSION SHOULD MODIFY ITS PROPOSED TECHNICAL AND SPECTRUM ACCESS SYSTEM RULES.**

In addition to the rule changes discussed above, WISPA recommends certain changes to the proposed technical rules and rules for the SAS.

*Proposed Section 96.36 – Citizens Broadband Radio Service (CBSD) General Requirements* – Proposed Section 96.36(b) proposes that “[a]ll CBSDs must be capable of operating on any frequency from 3550-3700 MHz as instructed by the SAS.”<sup>95</sup> WISPA notes that the inclusion of the 3650-3700 MHz frequencies presumes that this portion of the band would be governed by Part 96. While that may be the case in the future, during the transition period devices certified for the 3650-3700 MHz frequencies will not be interoperable across all 150 megahertz. Accordingly, legacy 3650-3700 MHz equipment should be excluded from the interoperability requirement.<sup>96</sup> The Commission also should make clear that “interoperability” relates only to operations across all relevant frequencies, but does not require devices to conform

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<sup>93</sup> See *id.* at 20.

<sup>94</sup> *Id.* at 19.

<sup>95</sup> *Id.* at Appendix A, Proposed Section 96.36(a).

<sup>96</sup> See Section VII, *infra*, regarding the transition of Part 90 equipment and operations.

to any particular air interface standard or to impose any roaming obligations across separately owned networks.

WISPA supports the requirement in Proposed Section 96.36(d) that would require a CBSD to report interference to the SAS. This requirement will help resolve interference issues automatically and act as a check in the system.

*Proposed Section 96.38 – General Radio Requirements* – In addition to its proposals described above regarding the need for higher-power end user devices in rural areas,<sup>97</sup> WISPA offers additional comments on certain portions of Proposed Section 96.38.

First, WISPA supports the Commission’s proposal that CBSDs limit their operating power to the minimum necessary for successful operation, as set forth in Proposed Section 96.38(b)(2). This requirement is commonly found in other unlicensed bands and effectively reduces power to mitigate harmful interference to nearby operations.

Second, WISPA supports requiring CBSDs to have transmit power control capability to promote flexibility and interoperability within the band under differing maximum power levels, but strongly opposes the Commission’s proposal to allow the SAS to adjust the maximum EIRP of CBSDs.<sup>98</sup> Automatically reducing transmit power would have severe adverse consequences for Priority Access licensees and GAA users because their subscribers would be disconnected from their broadband service without notice. Not only would this hardship apply for broadband services, but it would also harm Critical Access Users that provide certain core mission functions such as public safety, health care, utilities and governmental services. The inequity of this situation would be especially egregious for Priority Access licensees that acquired their PALs via competitive bidding based on metrics such as population.

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<sup>97</sup> See Section I.B., *supra*, regarding Proposed Section 96.38(b).

<sup>98</sup> See FNPRM, Appendix A, Proposed Section 96.38(b)(3).

Moreover, assuming *arguendo* the Commission adopts Proposed Section 96.38(b)(3), the proposed rule does not set any limits on when the SAS could require a power reduction. Leaving such an important issue – one that determines who receives service and who does not – to the SAS administrators would be an unwise abdication of Commission authority. If adopted, the final rule should strictly and clearly limit the circumstances under which an SAS could reduce transmit power and establish procedures by which the CBSD licensee or registrant would receive ample notice so that it has an opportunity to change its network design in order to maintain existing service. Rather than relying on the principle of reducing transmitter EIRP to mitigate interference, WISPA has proposed that the SAS mitigate interference by monitoring CBSD error rates and changing transmitter frequency.<sup>99</sup>

Third, WISPA supports the Commission’s proposal to establish a signal strength limit along census tract borders.<sup>100</sup> The Commission has adopted a similar interference protection technique in other bands utilizing geographic-based licensing,<sup>101</sup> and the benefits here will be even greater given the SAS’s incorporation of the data in connection with its interference management functions. WISPA also agrees that parties in neighboring licensed areas should have the ability to agree to a different field strength, but notes the limitations inherent in a dynamic spectrum assignment scheme that could render such agreements ineffective as the SAS shifts one or both co-channel contracting parties to different frequencies in the band.

*Proposed Section 96.43 – Spectrum Access System Purposes and Functionality* – WISPA supports the ability of the SAS to “determine” the maximum EIRP and communicate that

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<sup>99</sup> See WISPA Technical Paper at 5.

<sup>100</sup> See *id.* at Appendix A, Proposed Section 96.38(c).

<sup>101</sup> See, e.g., Section 27.55.



information to a CBSD, but as stated above the rules should make clear that the SAS should not have the authority to automatically and dynamically change EIRP.<sup>102</sup>

*Proposed Section 96.46 – Frequency Assignment* – Proposed Section 96.46(a) appears to omit the obligation of the SAS to include frequency assignments for Priority Access and GAA users. To clarify, the Proposed Rule should be re-stated as follows (new language underscored):

(a) The SAS will determine the available and appropriate channels/frequencies at a given location using the geographic information supplied by CBSDs, the frequency assignment data for Incumbent Users, Priority Access users and General Authorized Access Users in the SAS, the authorization status and operating parameters of CBSDs in the surrounding area, and such other information necessary to ensure effective operations of CBSDs consistent with this part.

Similarly, Proposed Section 96.46(a)(2) should be modified to reflect the requirement that Priority Access use can result in the cessation of GAA operations (new language underscored):

(2) Upon request from the Commission, the SAS shall confirm that CBSDs in a given geographic area and on a specific frequency have been shut down in response to a request from an Incumbent User or Priority Access user.

*Proposed Section 96.49 – Spectrum Access System Administrator Fees* – WISPA believes that SAS administrators should be permitted to collect fees from GAA users and PALs, both of which will benefit from the advantages of the SAS management functions.<sup>103</sup> The Commission should select multiple qualified SAS administrators to promote competition in pricing and features.

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<sup>102</sup> See *FNPRM*, Appendix A, Proposed Section 96.43(b).

<sup>103</sup> See *id.* at 33.

**VII. THE COMMISSION SHOULD ENHANCE ITS SUPPLEMENTAL PROPOSAL FOR 3650-3700 MHz BAND TO ENSURE THAT GRANDFATHERED WIRELESS BROADBAND PROVIDERS ARE AFFORDED A SUFFICIENT OPPORTUNITY TO MAINTAIN THEIR OPERATIONS WITH MINIMAL DISRUPTION AND COST.**

Since it was initially opened for commercial use in 2007,<sup>104</sup> WISPs have become heavy users of the 3650-3700 MHz band for the provision of fixed wireless broadband service and point-to-point connectivity to enable service to end users on unlicensed frequencies. The “light licensing” rules have worked well and, with a few exceptions, operators have cooperated to resolve interference disputes.<sup>105</sup>

In the *FNPRM*, the Commission seeks comment on whether it should extend the proposed Part 96 rules to incumbent licensees, which it refers to as Grandfathered Wireless Broadband Providers.<sup>106</sup> The Commission states that “[t]here could be long term gains and significant public interest benefits to extending the rules” and acknowledges “the significant investment that incumbent 3650-3700 MHz licensees have made.”<sup>107</sup> The Commission proposes that, if it extends the rules, a Grandfathered Wireless Broadband Provider would be accorded Incumbent Access status for five years within the service contours of its registered based stations or fixed access points.<sup>108</sup> After the transition period, a Grandfathered Wireless Broadband Provider would have the option of either applying for a PAL or operating on a GAA basis, consistent with Proposed Section 90.1338(d).

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<sup>104</sup> See *3650 MHz Licensing PN*.

<sup>105</sup> See Section 90.1319(c) (requiring applicants and licensees to cooperate in selecting and using frequencies to minimize the potential for interference, but without defining “cooperation” or “interference”).

<sup>106</sup> See *FNPRM* at 51.

<sup>107</sup> *Id.*

<sup>108</sup> See *id.*; Proposed Section 90.1338(a)(1). The Commission should clarify in the rule that “Fixed and Base station registrations (for access points) filed prior to [adoption date] will be afforded protection from interference caused by GAA users and Priority Access licensees for 5 years from [adoption date].” (New language underscored). This will make clear the Commission’s intention to grant Incumbent Access protection to Grandfathered Wireless Broadband Providers during the transition period.

The Commission's proposal requires modification to ensure that a Grandfathered Wireless Broadband Provider is no worse off during and at the end of the transition period than it is under the current Part 90 rules. Grandfathered Wireless Broadband Providers have expended millions of dollars on equipment, complied with the registration requirements and are serving tens of thousands of subscribers, many of them in rural areas where broadband availability is otherwise lacking. The Commission cannot, through the intended or unintended consequences of its rules, strand this investment and allow subscribers to lose access to fixed broadband service.

WISPA therefore supports the Commission's plan to designate each Grandfathered Wireless Broadband Provider as an Incumbent Access user during the transition period.<sup>109</sup> WISPA also supports a five-year transition period that would allow a Grandfathered Wireless Broadband Provider to retain its Part 90 equipment indefinitely under certain conditions described below. WISPA believes that this approach will afford Grandfathered Wireless Broadband Providers flexibility – those that wish to continue to operate as they currently are would be permitted to do so if they take certain steps, and those that wish to convert to Part 96 equipment would have the opportunity to do so. Under this proposal, a Grandfathered Wireless Broadband Provider would not be required to replace equipment before the end of its useful life, but would also not obtain the full benefits of dynamic frequency assignment that the SAS would afford. At the end of the five-year transition period, a Grandfathered Wireless Broadband Provider operating under Part 90 would be required to install interoperable equipment pursuant to Proposed Section 96.36(b) whenever it replaced equipment or registered a new location. Over time, as determined by the marketplace and not by prescriptive Commission rule, operations of Grandfathered Wireless Broadband Providers would migrate into Part 96. During the transition period, all base stations would be registered in the SAS as ULS registration is phased out,

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<sup>109</sup> See *FNPRM* at 51.



thereby ensuring that all operations were incorporated into the SAS. WISPA believes that this process would offer maximum flexibility to Grandfathered Wireless Broadband Providers by not forcing an equipment change-out and without impairing the SAS process or increasing the potential for harmful interference.

Under WISPA's proposal, a Grandfathered Wireless Broadband Provider would have the right to maintain its existing operations under Part 90 if it timely notifies the Commission and the SAS administrator of its service contours and channels. In this fashion, all users in the 3550-3700 MHz range would have registration requirements. A Grandfathered Wireless Broadband Provider would not, however, be subject to any dynamic frequency assignment obligations – its spectrum use in the census tracts corresponding with its service contours would remain static until new equipment was registered during or after the five-year transition period. A Grandfathered Wireless Broadband Provider also could elect, for some or all of its existing registrations, to convert to interoperable equipment during the transition period as equipment becomes available. These licensees would obtain the immediate benefits of dynamic frequency assignment and the coordination benefits of the SAS. Overall, WISPA believes this “phase-in” approach balances the interests of both Grandfathered Wireless Broadband Providers that have ongoing operations and new entrants that desire to have access to a 150-megahertz block of spectrum.

WISPA also recommends other modifications to the Commission's proposed transition. First, contrary to Proposed Section 90.1311(a), the five-year transition period should be extended to the remaining term on the Grandfathered Wireless Broadband Provider's license. For instance, if the license expires three years after the end of the transition period, the Grandfathered Wireless Broadband Provider would obtain the benefit of the license and

Incumbent Access status until the end of the license term. Grandfathered Wireless Broadband Providers obtained their licenses in the expectation that the term would last a full ten years, and any regulatory process that cuts short that term would be unfair at best and unlawful at worst.<sup>110</sup>

Second, as discussed in Section IV, *supra*, the proposed 30-megahertz cap on the amount of spectrum any PAL holder could hold in a given census tract should not apply to Grandfathered Wireless Broadband Providers that are currently using more than 30 megahertz of the 3650-3700 MHz band. For instance, a Grandfathered Wireless Broadband Provider may be using five 10-megahertz channels in the same census tract. Without the proposed exception, that Grandfathered Wireless Broadband Provider would only be eligible to obtain PALs for three of those channels, and the other two would face the uncertainty of GAA status. Grandfathered Wireless Broadband Providers should not have to face this dilemma.

Third, in response to the Commission's question about how to determine contours for purposes of the SAS,<sup>111</sup> WISPA proposes that each Grandfathered Wireless Broadband Provider be afforded an opportunity to report to the Commission its channels and service contours by census tract.<sup>112</sup> This information would be provided to the SAS during the transition period using the same census tract geographic unit, which would ensure uniformity in the SAS. Thus, at the end of the transition, all grandfathered operations would be included in the SAS, even if the equipment was initially registered in ULS and deployed under Part 90 rules. Because Part 90

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<sup>110</sup> See WISPA NPRM Reply Comments at 10-11, citing *P&R Temmer v. FCC*, 743 F.2d 918, 927-28 (D.C. Cir. 1984) ("a license is modified for purposes of section 316 [of the Communications Act] when an unconditional right conferred by the license is substantially affected").

<sup>111</sup> See *FNPRM* at 52.

<sup>112</sup> This obligation also would apply to any new locations deployed during the transition period where the Grandfathered Wireless Broadband Provider elects to register in ULS and not the SAS. To the extent more than one 3650-3700 MHz Service licensee specified the same census tract, the SAS would accept that information and, as the Commission proposes, the licensees would remain subject to the cooperation requirements of Section 90.1319. See *id.* at 51.



equipment does not employ dynamic spectrum assignment capabilities, Grandfathered Wireless Broadband Providers would be assigned to the specific channels on which they operate.<sup>113</sup>

Fourth, upon reporting these areas to the Commission, there is no policy or technical reason for the Commission to continue to require Grandfathered Wireless Broadband Providers to register end-user locations in ULS, as Section 90.1317 presently requires.

Most importantly, after the transition period, and subject to the proposals described above, Grandfathered Wireless Broadband Providers should be offered a *first* right to apply for PALs in the census tracts reported to the Commission and the SAS during the transition period. This filing opportunity would occur *prior to* the opening of any general filing window for PALs in the 3650-3700 MHz band that the Commission establishes. Through this process, Grandfathered Wireless Broadband Providers would be able to protect their investment without having to either subject themselves to an auction process (if there are more applicants than PAL licenses) or choose between PAL or GAA status.<sup>114</sup> As stated in the WISPA Reply Comments:

Without the protection of Priority Access, thousands of consumers that currently receive fixed broadband services on “lightly licensed” 3650-3700 MHz spectrum would be relegated to Part 15 or GAA status and be forced to accept harmful interference from any Priority Access users the Commission may authorize and any new opportunistic or unlicensed users, something even the modest protections currently afforded them by the Part 90 rules do not allow.<sup>115</sup>

With these refinements, the Commission’s transition proposal should accommodate the interests of the Commission in implementing and enforcing an administratively efficient process,

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<sup>113</sup> Existing 3650-3700 MHz equipment can operate on multiple channel widths, in some case less than 10 megahertz and in some cases more than 10 megahertz. Further, the channels of operation may not be divided at each 10-megahertz interval, i.e., the operating channel may be a 7.5 megahertz channel between 3655-3662.5 MHz. For administrative efficiency and to avoid the potential increase in competition if licensees were forced to modify their operations and to simplify the SAS, WISPA recommends that the transition report that licensees file with the Commission should identify the 10-megahertz channel(s) that best represents the channel(s) on which they operate. During the transition period, licensees could continue to operate “as-is.” Grandfathered Wireless Broadband Providers would be required to specify a 10-megahertz channel in the post-transition application (for PAL) or registration (for GAA) process.

<sup>114</sup> See *FNPRM* at 51.

<sup>115</sup> WISPA Reply Comments at 9.



Grandfathered Wireless Broadband Providers in maintaining their investment and consumers in receiving broadband service via the existing 3650-3700 MHz band. Over time, and without forcing Grandfathered Wireless Broadband Providers to buy new equipment before they are ready, all operations in the 3550-3700 MHz band will transition to the SAS-governed Part 96 rules.

### **Conclusion**

WISPA is pleased to support many of the Commission's proposals. WISPA also offers a number of recommendations designed to enhance the capabilities of the SAS, increase flexibility through technical rules that promote spectrum-efficient small cell and higher-power uses on a shared basis with incumbents and ensure that Grandfathered Wireless Broadband Providers are able to continue to serve their customers during the transition period and thereafter.

Respectfully submitted,

### **WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

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